ENVIRONMENTAL ALLIANCE, INC.

• *Engineering*

• *Remediation*

• *Consulting*

January 27, 2014

Mr. Richard Staron
Pennsylvania Department of Environmental Protection
Environmental Cleanup Program (ECP)
Southeast Regional Office
2 East Main Street
Norristown, PA 19401

Re: Work Plan for Soil Gas Investigation
ECP – Special Projects – Act 2 (eFACTS # 47534)
Superior Tube Company, Inc.
3900 Germantown Pike
Lower Providence Township, Montgomery County

Dear Mr. Staron:

Pursuant to the Act 2 Cleanup Plan, as modified by the December 13, 2011 letter from Environmental Alliance, Inc. (Alliance) to the United States Environmental Protection Agency (USEPA), for the above referenced Site, Alliance, on behalf of Superior Tube Company, Inc. (STCI), is providing this Work Plan proposing a soil gas investigation in the area of Point of Compliance (POC) monitoring well MW-1 on Lot 8 of the site.

As reported in the 60-Day Status Report dated December 20, 2013, POC well MW-1, sampled on November 15, 2013, reported a trichloroethylene (TCE) concentration of 2,000 µg/L, which exceeds the Site Specific Standard (SSS) of 1,800 µg/L. Analytical results from samples collected on December 12, 2013 during the re-sampling event indicated a TCE concentration of 1,600 µg/L at MW-1, below the SSS. It should be noted that STCI initiated monthly sampling of POC well MW-1 after an increasing trend in TCE concentration was observed following the September 2013 quarterly attainment monitoring event. The November result has been the only exceedance of the SSS at MW-1.

The average concentration of the November and December results does not exceed the SSS by more than 25%. MW-1 is approximately 200-ft from an occupied dwelling. As presented in the December 13, 2011 letter, additional investigations will be completed when the following criteria are met: (1) the exceedance is confirmed by re-sampling and the POC well is within 200-ft from

an occupied dwelling; or (2) the average of the two groundwater results exceeds the SSS by more than 25% at any POC well. Although based on these data a work plan is not required at this time, STCI wishes to evaluate the potential vapor intrusion pathway in this area to determine if further action may be required should continued exceedances of the SSS for TCE be detected in this POC well.

Figure 1 presents a Site Base Map depicting the location of the site monitoring and POC wells. A TCE concentration trend graph for POC well MW-1 is presented in Figure 2. The laboratory analytical reports for MW-1 (March through December 2013) are provided in Attachment 1.

Given the location of POC well MW-1, the recent TCE concentrations, and the possibility of future exceedance(s) of the SSS at MW-1, Alliance proposes to conduct a soil gas investigation in the area of MW-1 to qualitatively assess the potential risk that the dissolved TCE concentrations in the bedrock aquifer poses to the vapor intrusion pathway at this, and neighboring, locations. It is proposed that this investigation be completed using soil gas monitoring wells (SGMWs). The SGMWs will measure VOCs present in the subsurface soil gas in the unconsolidated soils above the competent bedrock in the area of the dissolved phase TCE plume. Four SGMWs are proposed at locations depicted on Figure 3, attached.

The SGMWs will be installed using a direct-push sampling technology and the boring will be advanced until shallow (perched) groundwater, or refusal is encountered. The SGMW will be constructed with a one or two-foot length of one-inch diameter 10 slot schedule 40 PVC screen and appropriate length of one-inch PVC riser to extend to ground surface. The target screen depth of the SGMW will be 8-9 feet (ft) below ground surface (bgs), with a minimum depth of 3-4 ft bgs should refusal or groundwater be encountered at shallower depths. The annular space between each well screen and the borehole will be filled with a sand pack from the bottom of the borehole to approximately 0.5 feet above the screened interval. A bentonite grout seal will be placed from the annular space above the sand pack to the surface. No solvent or glue will be used in the construction of the well. Sampling will not take place until at least 24-hours after construction. The SGMWs will be sampled in accordance with sampling procedures summarized in Attachment 2.

The proposed schedule is to conduct the installation of the SGMWs and a winter sampling event by the end of February 2014. A second sampling event will be conducted in the spring. A report will be submitted to PADEP and EPA summarizing the results of the soil gas investigation. The data collected may be used to model potential vapor intrusion into buildings and/or eliminate vapor intrusion as an exposure pathway in this area of the Site.

If you have any questions regarding this submittal or require additional information, please contact me at (302) 234-4400.

Sincerely yours,
ENVIRONMENTAL ALLIANCE, INC.

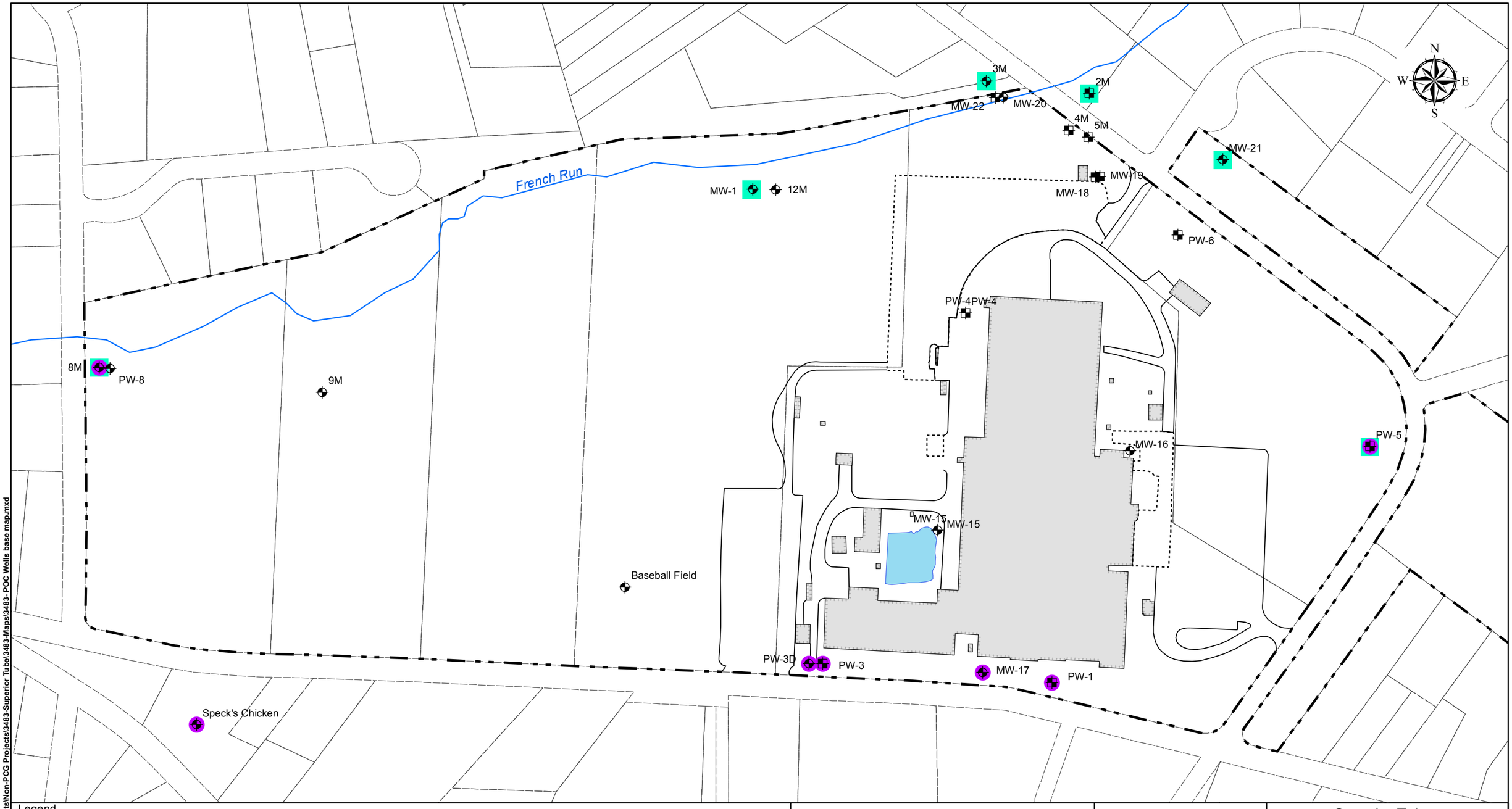
Joseph Rossi
Project Manager

cc: Khai Dao, USEPA
Rick Warden, STC
John Peronti, STCI
Brian Jacot, Greystone Consolidated Companies, Inc.

Attachments

\\192.168.1.10\Data2\EAI_files\3483_Superior_Tube\VI Investigation\Soil Gas\20140117_SoilGas_Lot_8_Workplan.docx

FIGURES



Legend

- Monitoring Well
- Recovery Well
- SRS Point of Compliance Well
- NRS Point of Compliance Well
- Surface Water
- Property Boundary
- Lower Providence Parcels
- Building/Structure
- Concrete/Gravel
- Water Body

0 200 400 Feet

Sources: Site features based on Pennsylvania Spatial Data Access (PASDA), Delaware Valley Regional Planning Commission (DVRPC) orthoimagery tile PA_X22_Y092, 2005. Parcels provided by Montgomery County, PA, January, 2008.
-Site Monitoring Well and Recovery Well locations were field surveyed in October 2013 using a GPS.

Environmental Alliance, Inc.
5341 Limestone Road, Wilmington, DE 19808
Phone: (302) 234-4400 - Fax: (302)234-1535

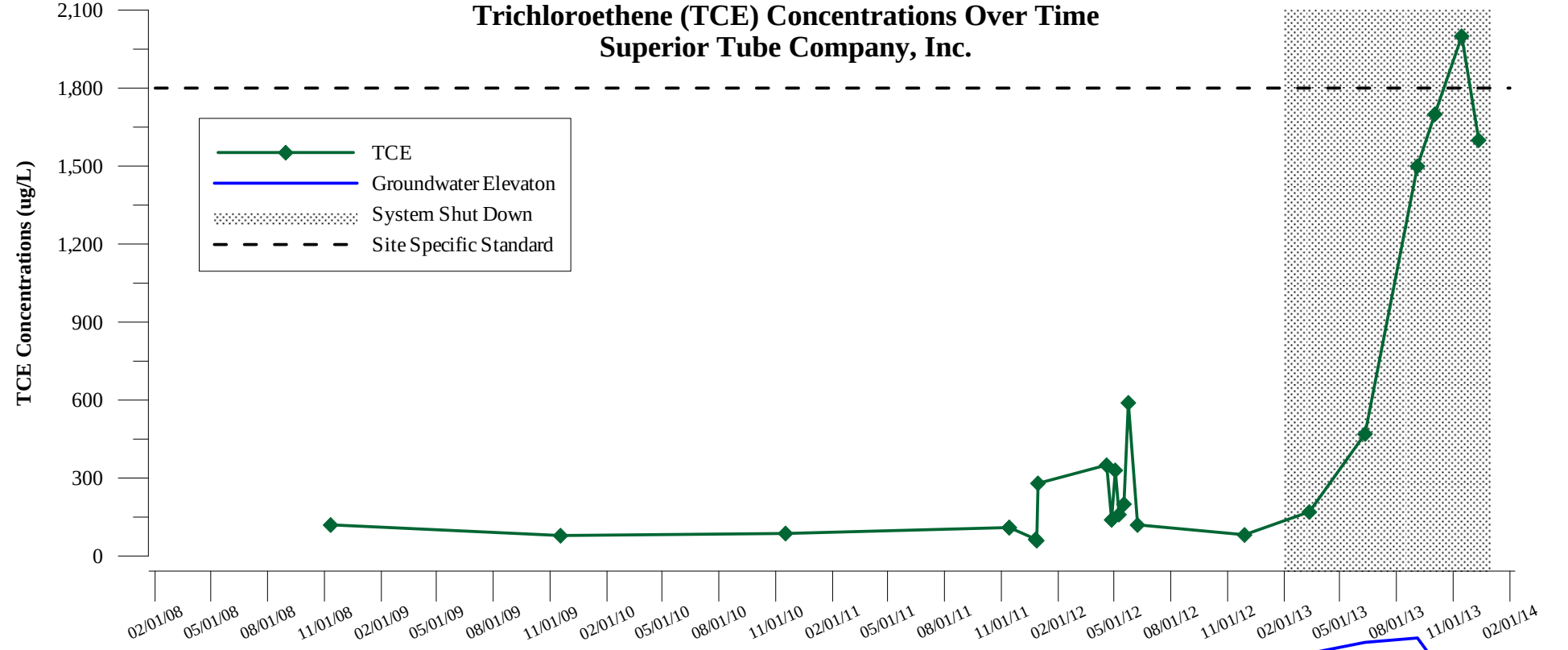
Superior Tube
3900 Germantown Pike
Collegeville, PA 19462

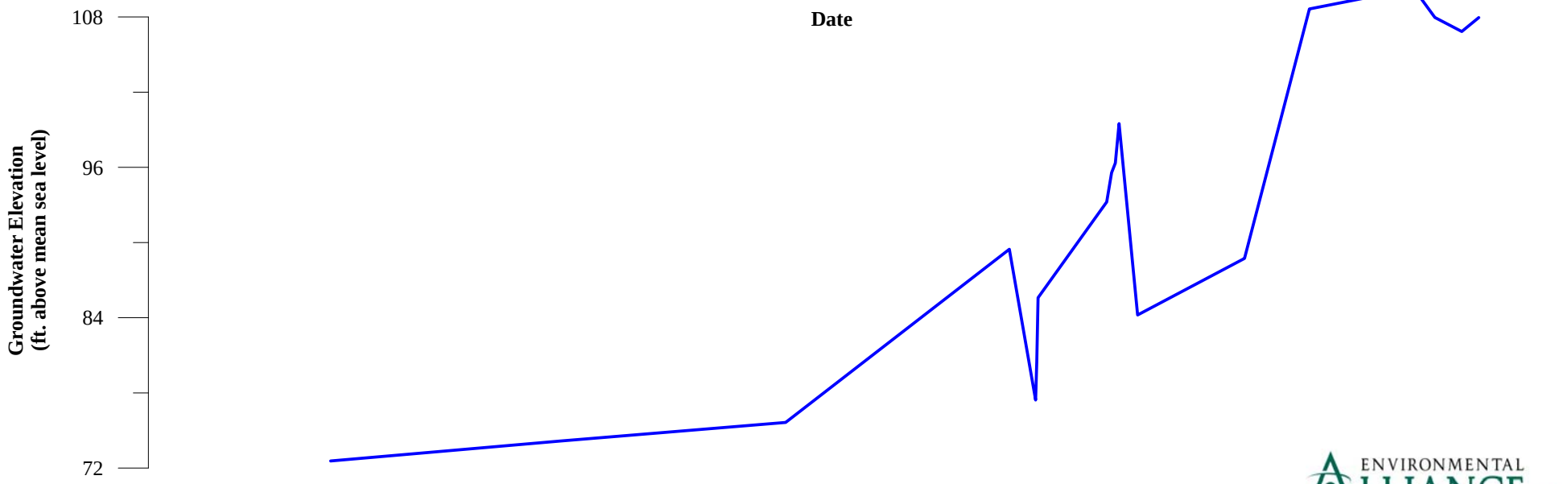
Site Base Map

DESIGNED BY:	DRAWN BY:	UPDATED BY:	FIGURE NO.:
JR	SKJ		1
APPROVED BY:	PROJECT NO.:	DATE:	
	3483	01/23/14	

01/23/14 3:50:41 PM - G:\EA\ Projects\Non-PCG Projects\3483-Superior Tube\3483-Maps\3483- POC Wells base map.mxd

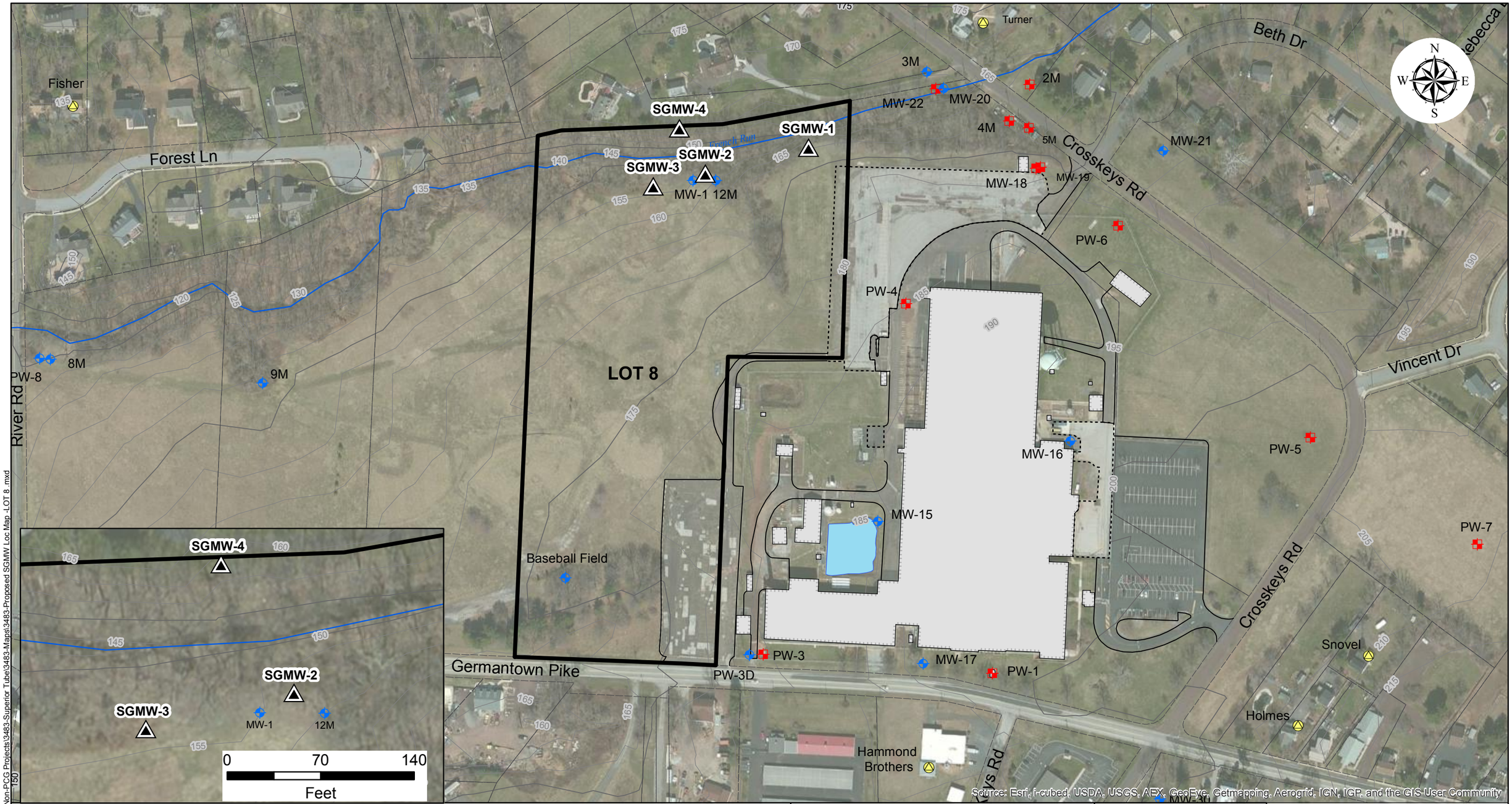
Figure 2
MW-1
Trichloroethene (TCE) Concentrations Over Time
Superior Tube Company, Inc.





3483_SuperiorTube_TCE_Graphs

ENVIRONMENTAL ALLIANCE, INC.



Legend

- Proposed Soil Gas Monitoring Well (SGMW)
- Monitoring Well
- Potable Well
- Recovery Well
- Lot 8
- Stream
- Paved Area
- Lower Providence Parcels
- Building/Structure
- Concrete/Gravel
- Water Body
- Intermediate Contour
- Index Contour

0 200 400 Feet

Sources:

Site features based on Pennsylvania Spatial Data Access (PASDA), Delaware Valley Regional Planning Commission (DVRPC) orthoimagery tile PA_X22_Y092, 2005. Parcels provided by Montgomery County, PA, January 2008.
-Site Monitoring Well and Recovery Well locations were field surveyed in October 2013 using a GPS.

Environmental Alliance, Inc.
5341 Limestone Road, Wilmington, DE 19808
Phone: (302) 234-4400 - Fax: (302) 234-1535

Superior Tube
3900 Germantown Pike
Collegeville, PA 19462

Proposed Soil Gas Monitoring Well Location Map - Lot 8

DESIGNED BY:	DRAWN BY:	UPDATED BY:	FIGURE NO.:
JR	SKJ		3
APPROVED BY:	PROJECT NO.: 3483	DATE: 01/27/14	

01/27/14 2:51:08 PM • G:\EAI Projects\Non-PCG Projects\3483-Superior Tube\3483-Maps\3483-Proposed SGMW Loc Map -LOT 8 .mxd

ATTACHMENT I

LABORATORY ANALYTICAL REPORTS

(MARCH THROUGH DECEMBER 2013)

ENVIRONMENTAL ALLIANCE, INC.

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

March 24, 2013

Project: 3483 / Superior Tube, PA

Submittal Date: 03/14/2013
Group Number: 1375604
PO Number: 3483
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LLI) #
8M0311131116 Grab Groundwater	6983860
MW210311131436 Grab Groundwater	6983861
MW220311131500 Grab Groundwater	6983862
4M0311131540 Grab Groundwater	6983863
FB0311131550 Grab Water	6983864
Trip031113 Water	6983865
SpecksChicken0312131045 Grab Groundwater	6983866
2M0312131030 Grab Groundwater	6983867
PW50312131045 Grab Groundwater	6983868
3M0312131400 Grab Groundwater	6983869
BaseballField0312131222 Grab Groundwater	6983870
BBFFD0312131223 Grab Groundwater	6983871
FB0312131410 Grab Water	6983872
TripBlank031213 Water	6983873
MW-10313131030 Grab Groundwater	6983874
MW-1MS0313131031 Grab Groundwater	6983875
MW-1MSD0313131032 Grab Groundwater	6983876
PW3D0313131145 Grab Groundwater	6983877
PW30313131300 Grab Groundwater	6983878
PW-10313131312 Grab Groundwater	6983879
MW150313131500 Grab Groundwater	6983880
MW170313131530 Grab Groundwater	6983881
FB0313131545 Grab Water	6983882
Trip031313 Water	6983883

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Environmental Alliance, Inc. Attn: Myrna Klair

Sample Description: MW-10313131030 Grab Groundwater
2604 / Superior Tube, PA

LLI Sample # WW 6983874
LLI Group # 1375604
Account # 07039

Project Name: 3483 / Superior Tube, PA

Collected: 03/13/2013 10:30 by KR

Submitted: 03/14/2013 18:10
Reported: 03/24/2013 18:59

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

M1483

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	cis-1,2-Dichloroethene	156-59-2	26	5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	1
10335	Tetrachloroethene	127-18-4	< 5	5	1
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	1
10335	Trichloroethene	79-01-6	170	5	1
10335	Vinyl Chloride	75-01-4	< 5	5	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/14

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	T130791AA	03/20/2013 11:33	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T130791AA	03/20/2013 11:33	Linda C Pape	1

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1375604
Reported: 03/24/13 at 06:59 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T130771AA	Sample number(s): 6983860-6983864							
cis-1,2-Dichloroethene	< 5	5.	ug/l	101	100	80-120	2	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	100	99	80-120	1	30
Tetrachloroethene	< 5	5.	ug/l	102	99	79-120	3	30
1,1,1-Trichloroethane	< 5	5.	ug/l	114	111	66-126	3	30
Trichloroethene	< 5	5.	ug/l	104	101	80-120	3	30
Vinyl Chloride	< 5	5.	ug/l	91	87	63-120	5	30
Batch number: T130791AA	Sample number(s): 6983862,6983865-6983883							
cis-1,2-Dichloroethene	< 5	5.	ug/l	97		80-120		
trans-1,2-Dichloroethene	< 5	5.	ug/l	96		80-120		
Tetrachloroethene	< 5	5.	ug/l	99		79-120		
1,1,1-Trichloroethane	< 5	5.	ug/l	107		66-126		
Trichloroethene	< 5	5.	ug/l	100		80-120		
Vinyl Chloride	< 5	5.	ug/l	94		63-120		
Batch number: T130801AA	Sample number(s): 6983863							
Trichloroethene	< 5	5.	ug/l	104	98	80-120	6	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: T130791AA	Sample number(s): 6983862,6983865-6983883 UNSPK: 6983874								
cis-1,2-Dichloroethene	104	103	80-141	0	30				
trans-1,2-Dichloroethene	108	110	81-142	1	30				
Tetrachloroethene	108	107	80-128	0	30				
1,1,1-Trichloroethane	123	122	69-140	1	30				
Trichloroethene	113 (2)	104 (2)	88-133	1	30				
Vinyl Chloride	105	105	66-133	0	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1375604
Reported: 03/24/13 at 06:59 PM

Surrogate Quality Control

Analysis Name: 8260 VOCs
Batch number: T130771AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6983860	110	95	94	102
6983861	110	99	94	102
6983862	110	98	93	100
6983863	111	96	91	102
6983864	109	93	96	102
Blank	106	95	99	105
LCS	103	96	101	110
LCSD	101	94	99	107
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: T130791AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6983865	104	95	96	106
6983866	101	90	98	105
6983867	106	94	97	108
6983868	104	92	97	104
6983869	106	94	96	104
6983870	108	95	94	104
6983871	110	95	93	105
6983872	106	95	98	107
6983873	105	96	97	109
6983874	107	96	96	106
6983875	106	96	98	109
6983876	103	94	99	110
6983877	108	96	97	105
6983878	108	97	95	105
6983879	108	96	94	102
6983880	111	97	93	103
6983881	108	95	93	103
6983882	106	95	97	107
6983883	104	92	97	107
Blank	106	96	95	107
LCS	103	96	99	110
MS	106	96	98	109
MSD	103	94	99	110
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 7039 For Eurofins Lancaster Laboratories use only Group # 1375664 Sample # 698 38660-83
Instructions on reverse side correspond with circled numbers.

COC # 328801

1 Client Information

Client: Environmental Alliance
Acct. #:
Project Name/#: Superior Tube
PWSID #:
Project Manager: Joe Rossi
P.O. #: 3483
Sampler: KR | DL
Quote #:
Name of state where samples were collected: PA

4 Matrix: Sediment ☐ Soil ☐ | Ground ■ Potable ☐ Water ☐ | Surface ☐ NPDES ☐ | Other: ☐

5 Analysis Requested

Preservation Codes

For Lab Use Only
FSC:
SCR#: 136051

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	3 Composite	Total # of Containers	TCE, PCE, cis/trans 1,2 DCE, TCA, VC 8260B
8m	3-11-13	1116	✓		3	✓
MW21	3-11-13	1436	✓		3	✓
MW22	3-11-13	1500	✓		3	✓
4m	3-11-13	1540	✓		3	✓
FB	3-11-13	1550	✓		3	✓
Trip	—	—	—		1	✓
Specks Chicken	3-12-13	1045	✓		3	✓
2m	3-12-13	1030	✓		3	✓
PW5	3-12-13	1045	✓		3	✓
3m	3-12-13	1400	✓		3	✓

7 Turnaround Time (TAT) Requested (please circle)
(Standard) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

E-mail address:

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) B2 EDD
Type III (Reduced non-CLP)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottles Storage	3-11-13	09:00	Bill DeJong	3-11-13	09:00
Bill DeJong	3-11-13	13:20			
[illegible]	3/14/13	0900	Mark Denlinger	3/14/13	1010
Mark Denlinger	3/14/13	1810			

9

EDD Required? Yes No
If yes, format:
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx Other

Temperature upon receipt 7m °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 70 7039 Group # 1375604 Sample # 6983860-83
For Eurofins Lancaster Laboratories use only
Instructions on reverse side correspond with circled numbers.
3/14/13 (6)

COC # 328802

(1) Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube	PWSID #:
Project Manager: Joe Rossi	P.O. #: 3483
Sampler: Kr/OL	Quote #:
Name of state where samples were collected: pa	

(4) Matrix: Sediment ☐ Soil ☐; Water: Ground ■ Surface ☐ Potable ☐ NPDES ☐; Other:

(5) Analysis Requested — Preservation Codes

Analysis: TCE PCE cis+trans 1-2 DCE TCA VC via 8260B

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Remarks

(2) Sample Identification

Sample Identification	Collected Date	Collected Time	(3) Grab	Composite	Soil	Water	Other	Total # of Containers	TCE PCE cis+trans 1-2 DCE TCA VC via 8260B
Baseball Field	3-12-13	1222	✓			✓		3	X
BBFFD	3-12-13	1223	✓			✓		3	X
FB	3-12-13	1410	✓			✓		3	X
Trip Blank	–	–	✓			✓		1	X
MW-1	3-13-13	1030	✓			✓		3	X
PW3D	3-13-13	1145	✓			✓		3	X
PW3	3-13-13	1300	✓			✓		3	X
MW1 MS	3-13-13	1031	✓			✓		3	X
MW1MSD	3-13-13	1032	✓			✓		3	X
PW-1	3-13-13	1312	✓			✓		3	X

(7) Turnaround Time (TAT) Requested (please circle)
(Standard) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: ____________

E-mail address: ____________

(8) Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)
EZEDD
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

(9)

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/14/13	900	Mark Denlinger	3/14/13	1010
Mark Denlinger	3/14/13	1810			
			[signature]		1810

EDD Required? Yes No
If yes, format: ____________

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other —

Temperature upon receipt 2.1 °C

Eurofins Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300
The white copy should accompany samples to Eurofins Lancaster Laboratories. The yellow copy should be retained by the client.
Issued by Dept. 40 Management
7044.02

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 7039 For Eurofins Lancaster Laboratories use only Group # 1375604 Sample # 698 3860-83

Instructions on reverse side correspond with circled numbers.

COC # 328803

For Lab Use Only
FSC: ______
SCR#: ______

① **Client Information**

Client: Environmental alliance	Acct. #:
Project Name/#: Superior Tube	PWSID #:
Project Manager: Joe Rossi	P.O. #: 3483
Sampler: KR/DL	Quote #:
Name of state where samples were collected: PA	

④ **Matrix**: Sediment ☐ Soil ☐ | Water: Ground ■ Surface ☐ Potable ☐ NPDES ☐ | Other:

⑤ **Analysis Requested** / **Preservation Codes**: TCE, PCE, cis 1,2 DCE, TCA, VC via 8260B

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

⑥ **Remarks**

② **Sample Identification** / **Collected** / ③

Sample Identification	Date	Time	Grab	Composite	Sediment/Soil	Water	Other	Total # of Containers	TCE, PCE, cis 1,2 DCE, TCA, VC via 8260B
MW 15	3-13-13	1500	X			X		3	X
MW 17	3-13-13	1530	X			X		3	X
FB	3-13-13	1545	X			X		3	X
Trip	—	—	—			X		1	X

⑦ **Turnaround Time (TAT) Requested** (please circle)
Standard (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: ______

E-mail address: ______

⑧ **Data Package Options** (circle if required) EL EDD

Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

⑨

Relinquished by	Date	Time	Received by	Date	Time
[signature]	3/14/13	900	Mark Denlinger	3/14/13	1010
Mark Denlinger	3/14/13	1810			
			[signature]	3/14/13	1810

EDD Required? Yes No
If yes, format: ______

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 2.4 °C

Eurofins Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300
The white copy should accompany samples to Eurofins Lancaster Laboratories. The yellow copy should be retained by the client.

Issued by Dept. 40 Management
7044.02

eurofins | Lancaster Laboratories

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

June 24, 2013

Project: 3483 / Superior Tube, PA

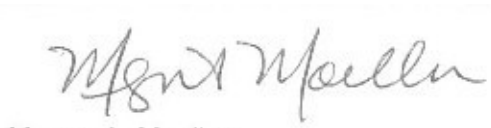
Submittal Date: 06/14/2013
Group Number: 1397364
PO Number: 6485
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LLI) #
MW-10611131330 Groundwater	7094245
PW-50611131345 Groundwater	7094246
PW-10611131450 Groundwater	7094247
FB0611131530 Groundwater	7094248
PW3D0612131230 Groundwater	7094249
PW3DDup0612131235 Groundwater	7094250
PW30612131505 Groundwater	7094251
FB0612131530 Groundwater	7094252
3M0613130830 Groundwater	7094253
MW150613131030 Groundwater	7094254
MSMW150613131035 Groundwater	7094255
MSDMW150613131040 Groundwater	7094256
FB0613131100 Water	7094257
Trip_Blank061313 Water	7094258
MW170614131100 Groundwater	7094259
FB0614131115 Water	7094260
Trip_Blank061413 Water	7094261

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO Environmental Alliance, Inc. Attn: Myrna Klair

Respectfully Submitted,



Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW-10611131330 Groundwater
3483 / Superior Tube, PA

LLI Sample # WW 7094245
LLI Group # 1397364
Account # 07039

Project Name: 3483 / Superior Tube, PA

Collected: 06/11/2013 13:30 by KR

Submitted: 06/14/2013 18:05
Reported: 06/24/2013 17:00

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

SPT01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	cis-1,2-Dichloroethene	156-59-2	59	5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	1
10335	Tetrachloroethene	127-18-4	< 5	5	1
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	1
10335	Trichloroethene	79-01-6	470	50	10
10335	Vinyl Chloride	75-01-4	< 5	5	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/14

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	T131711AA	06/20/2013 17:26	Linda C Pape	1
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	T131711AA	06/20/2013 17:50	Linda C Pape	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T131711AA	06/20/2013 17:26	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T131711AA	06/20/2013 17:50	Linda C Pape	10

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1397364
Reported: 06/24/13 at 05:00 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N131683AA	Sample number(s): 7094254-7094259							
cis-1,2-Dichloroethene	< 5	5.	ug/l	98		80-120		
trans-1,2-Dichloroethene	< 5	5.	ug/l	102		80-120		
Tetrachloroethene	< 5	5.	ug/l	104		79-120		
1,1,1-Trichloroethane	< 5	5.	ug/l	111		66-126		
Trichloroethene	< 5	5.	ug/l	102		80-120		
Vinyl Chloride	< 5	5.	ug/l	83		63-120		
Batch number: T131711AA	Sample number(s): 7094245-7094248,7094251-7094253							
cis-1,2-Dichloroethene	< 5	5.	ug/l	106		80-120		
trans-1,2-Dichloroethene	< 5	5.	ug/l	110		80-120		
Tetrachloroethene	< 5	5.	ug/l	98		79-120		
1,1,1-Trichloroethane	< 5	5.	ug/l	109		66-126		
Trichloroethene	< 5	5.	ug/l	105		80-120		
Vinyl Chloride	< 5	5.	ug/l	86		63-120		
Batch number: T131712AA	Sample number(s): 7094249-7094250,7094260-7094261							
cis-1,2-Dichloroethene	< 5	5.	ug/l	105	108	80-120	2	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	101	106	80-120	5	30
Tetrachloroethene	< 5	5.	ug/l	96	97	79-120	0	30
1,1,1-Trichloroethane	< 5	5.	ug/l	98	104	66-126	6	30
Trichloroethene	< 5	5.	ug/l	106	105	80-120	2	30
Vinyl Chloride	< 5	5.	ug/l	85	86	63-120	1	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: N131683AA	Sample number(s): 7094254-7094259 UNSPK: 7094254								
cis-1,2-Dichloroethene	105	106	80-141	1	30				
trans-1,2-Dichloroethene	111	113	81-142	1	30				
Tetrachloroethene	111	120	80-128	3	30				
1,1,1-Trichloroethane	116	116	69-140	0	30				
Trichloroethene	-138 (2)	-37 (2)	88-133	3	30				
Vinyl Chloride	99	101	66-133	1	30				
Batch number: T131711AA	Sample number(s): 7094245-7094248,7094251-7094253 UNSPK: P093502								

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1397364
Reported: 06/24/13 at 05:00 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
cis-1,2-Dichloroethene	113	112	80-141	2	30				
trans-1,2-Dichloroethene	117	115	81-142	1	30				
Tetrachloroethene	105	108	80-128	3	30				
1,1,1-Trichloroethane	113	107	69-140	5	30				
Trichloroethene	116	113	88-133	2	30				
Vinyl Chloride	90	88	66-133	2	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N131683AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7094254	104	102	96	94
7094255	104	98	98	98
7094256	103	99	99	99
7094257	103	100	97	93
7094258	105	103	95	93
7094259	105	102	95	91
Blank	104	100	96	93
LCS	102	99	99	99
MS	104	98	98	98
MSD	103	99	99	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: T131711AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7094245	105	106	100	100
7094246	100	101	98	98
7094247	103	101	96	98
7094248	95	96	98	95
7094251	104	104	99	100
7094252	93	81	102	94
7094253	104	102	97	99
Blank	101	101	96	98
LCS	101	99	97	100
MS	102	104	98	101
MSD	102	102	100	102
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: T131712AA

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1397364
Reported: 06/24/13 at 05:00 PM

Surrogate Quality Control

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7094249	106	104	99	101
7094250	107	102	98	102
7094260	107	105	99	100
7094261	105	101	101	101
Blank	104	105	98	99
LCS	103	103	99	101
LCSD	102	103	99	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

KR

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 7039 For Eurofins Lancaster Laboratories use only Group # 1397364 Sample # 7094245-61
Instructions on reverse side correspond with circled numbers.

COC #324542

1 Client Information

Client: Environmental Alliance
Acct. #:
Project Name/#: Superior Tube #3483
PWSID #:
Project Manager: Joe Rossi
P.O. #:
Sampler: KR
Quote #:
Name of state where samples were collected: PA

4 Matrix

Sediment ☐ Soil ☐ | Ground ☒ Potable ☐ Water | Surface ☐ NPDES ☐ | Other: ☐

5 Analysis Requested

Preservation Codes

For Lab Use Only

FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	3 Composite	Total # of Containers	H (TCE PCE DCE TCA VC 8260)
MW-1	6-11-13	1330	✓		3	✓
PW-5	6-11-13	1345	✓		3	✓
PW-1	6-11-13	1450	✓		3	✓
FB	6-11-13	1530	✓		3	✓
PW 3D	6-12-13	1230	✓		3	✓
PW 3D Dup	6-12-13	1235	✓		3	✓
PW 3	6-12-13	1505	✓		3	✓
FB	6/12/13	1530	✓		3	✓
3M	6/13/13	830	✓		3	✓
[redacted] KR						

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

E-mail address:

8 Data Package Options (circle if required) E2-EDD

Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Kevin Reisler	6/14/13	1230	Mark Denlinger	6/14/13	1250
Mark Denlinger	6/14/13	1805			

9

EDD Required? Yes No
If yes, format:
Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS FedEx Other

Temperature upon receipt 3.1 °C

KRI

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 7039 For Eurofins Lancaster Laboratories use only Group # 1397364 Sample # 7094245-61

Instructions on reverse side correspond with circled numbers.

COC #324541

1 Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube # 3483	PWSID #:
Project Manager: Joe Rossi	P.O. #:
Sampler: KR	Quote #:

Name of state where samples were collected: PA

4 Matrix

Sediment ☐ Soil ☐ | Ground ☒ Potable ☐ Water ☐ | Surface ☐ NPDES ☐ | Other: ☐

5 Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	3 Composite	Total # of Containers	TCE, PCE, TCA 8260 #
MW15	6-13-13	1030	✓		3	X
MSMW15	6-13-13	1035	✓		3	X
MSDMW15	6-13-13	1040	✓		3	X
FB	6-13-13	1100	✓		3	X
Trip Blank	6-13-13	—	✓		2	X
MW17	6-14-13	1100	✓		3	X
FB	6-14-13	1115	✓		3	X
Trip Blank	6-14-13	—	✓		2	X

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: _____

E-mail address: _____

8 Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) EZ EDD TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Kevin Reuter	6/14/13	1730	Mark Reutinger	6/14/13	1250
Mark Reutinger	6/14/13	1805			
			C2	6/14/13	1805

9

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS _____ FedEx _____ Other _____

Temperature upon receipt 3.1 °C

eurofins | Lancaster Laboratories

Environmental Sample Administration
Receipt Documentation Log 1397364

Client/Project: Env. Alliance

Date of Receipt: 6/14/13

Time of Receipt: 1805

Source Code: 01

Shipping Container Sealed: YES (NO)

Custody Seal Present * : YES (NO)

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DT131	3.1	TB	WI	Y	B	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 4

Paperwork Discrepancy/Unpacking Problems:

~~MW~~ 3M says 0815

Unpacker Signature/Emp#: [signature] 2241 **Date/Time:** 6/14/13 1905

Issued by Dept. 6042 Management

2174.06

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

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Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

September 18, 2013

Project: 3483 / Superior Tube, PA

Submittal Date: 09/06/2013
Group Number: 1417115
PO Number: 6983
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
8M0903131245 Grab Groundwater	7188948
BBField0903131135 Grab Groundwater	7188949
MW210903131350 Grab Groundwater	7188950
2M0903131430 Grab Groundwater	7188951
MW220903131340 Grab Groundwater	7188952
4M0903131400 Grab Groundwater	7188953
FB0903131510 Grab Water	7188954
Trip_Blank090313 Water	7188955
MW10904130945 Grab Groundwater	7188956
PW50904131010 Grab Groundwater	7188957
R39690904131020 Grab Groundwater	7188958
PW10904131150 Grab Groundwater	7188959
PW1DUP0904131150 Grab Groundwater	7188960
MW170904131300 Grab Groundwater	7188961
MW17MS0904131300 Grab Groundwater	7188962
MW17MSD0904131300 Grab Groundwater	7188963
PW30904131410 Grab Groundwater	7188964
PW3D0904131250 Grab Groundwater	7188965
FB0904131530 Grab Water	7188966
Trip_Blank090413 Water	7188967
MW150905131040 Grab Groundwater	7188968
3M0905131125 Grab Groundwater	7188969
FB0905131215 Grab Water	7188970
Trip_Blank090513 Water	7188971

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC Environmental Alliance, Inc. Attn: Myrna Klair

Sample Description: MW10904130945 Grab Groundwater
3483 / Superior Tube, PA

LL Sample # WW 7188956
LL Group # 1417115
Account # 07039

Project Name: 3483 / Superior Tube, PA

Collected: 09/04/2013 09:45 by KR

Submitted: 09/06/2013 16:40
Reported: 09/18/2013 17:52

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

ST-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	cis-1,2-Dichloroethene	156-59-2	87	5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	1
10335	Tetrachloroethene	127-18-4	6	5	1
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	1
10335	Trichloroethene	79-01-6	1,500	50	10
10335	Vinyl Chloride	75-01-4	< 5	5	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/14

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	L132541AA	09/11/2013 11:18	Stephanie A Selis	1
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	L132541AA	09/11/2013 11:40	Stephanie A Selis	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L132541AA	09/11/2013 11:18	Stephanie A Selis	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	L132541AA	09/11/2013 11:40	Stephanie A Selis	10

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1417115
Reported: 09/18/13 at 05:52 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: L132541AA	Sample number(s): 7188948-7188960,7188964-7188965							
cis-1,2-Dichloroethene	< 5	5.	ug/l	92	95	80-120	3	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	95	97	80-120	2	30
Tetrachloroethene	< 5	5.	ug/l	99	101	80-120	1	30
1,1,1-Trichloroethane	< 5	5.	ug/l	95	97	66-126	2	30
Trichloroethene	< 5	5.	ug/l	96	98	80-120	3	30
Vinyl Chloride	< 5	5.	ug/l	86	89	63-120	3	30
Batch number: L132543AA	Sample number(s): 7188961-7188963,7188965-7188971							
cis-1,2-Dichloroethene	< 5	5.	ug/l	96		80-120		
trans-1,2-Dichloroethene	< 5	5.	ug/l	99		80-120		
Tetrachloroethene	< 5	5.	ug/l	105		80-120		
1,1,1-Trichloroethane	< 5	5.	ug/l	99		66-126		
Trichloroethene	< 5	5.	ug/l	98		80-120		
Vinyl Chloride	< 5	5.	ug/l	88		63-120		
Batch number: L132551AA	Sample number(s): 7188969							
Trichloroethene	< 5	5.	ug/l	97	97	80-120	1	30

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: L132543AA	Sample number(s): 7188961-7188963,7188965-7188971 UNSPK: 7188961								
cis-1,2-Dichloroethene	99	100	80-141	1	30				
trans-1,2-Dichloroethene	104	105	81-142	1	30				
Tetrachloroethene	109	110	80-128	1	30				
1,1,1-Trichloroethane	112	113	69-140	1	30				
Trichloroethene	107	109	88-133	1	30				
Vinyl Chloride	96	95	66-133	1	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1417115
Reported: 09/18/13 at 05:52 PM

Surrogate Quality Control

Analysis Name: 8260 VOCs
Batch number: L132541AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7188948	105	107	97	93
7188949	108	109	97	91
7188950	106	108	98	92
7188951	108	107	99	91
7188952	109	109	98	91
7188953	109	108	98	91
7188954	105	106	97	92
7188955	105	108	97	92
7188956	110	106	99	89
7188957	106	106	97	92
7188958	107	107	97	92
7188959	107	107	96	91
7188960	108	108	97	92
7188964	108	108	96	90
7188965	107	107	98	91
Blank	105	106	96	93
LCS	101	103	99	98
LCSD	101	103	100	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: L132543AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7188961	106	107	97	91
7188962	103	104	101	100
7188963	102	102	100	100
7188966	103	106	97	93
7188967	105	105	97	93
7188968	106	106	98	91
7188969	107	105	98	92
7188970	106	104	98	93
7188971	106	107	98	93
Blank	108	106	97	92
LCS	103	105	101	100
MS	103	104	101	100
MSD	102	102	100	100
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 7029 For Eurofins Lancaster Laboratories use only Group # 1417115 Sample # 7188948-71

Instructions on reverse side correspond with circled numbers.

COC # 334836

1 Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube #3483	PWSID #:
Project Manager: Joe Rossi	P.O. #: 6983
Sampler: KAJ/DL	Quote #:

Name of state where samples were collected: PA

4 Matrix

Sediment ☐ Soil ☐ | Ground ☑ Potable ☐ Surface ☐ NPDES ☐ Water ☑ | Other: ☐

5 Analysis Requested

Preservation Codes

For Lab Use Only

FSC:

SCR#: 144523

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	3 Composite	Total # of Containers	TCE, PCE, VC, ETA VC 8260
8M	9-3-13	1245	✓		3	X
BB Field	9-3-13	1135	✓		3	X
MW21	9-3-13	1350	✓		3	X
2M	9-3-13	1430	✓		3	X
MW22	9-3-13	1340	✓		3	X
4M	9-3-13	1400	✓		3	X
FB	9-3-13	1510	✓		3	X
Trip Blank	—	—	—		2	X
MW1	9-4-13	945			3	X
PW5	9-4-13	1010			3	X

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: _____

E-mail address: _____

8 Data Package Options (circle if required)

EZ-EDD

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	8/30/13	0830	Mark Denlinger	8/30/13	0830
Mark Denlinger	8/30	1000			
	9/6/13	0900	Mark Denlinger	9-6-13	1330
		1640			
				9/6/13	1640

EDD Required? Yes No

If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:

UPS _____ FedEx _____ Other _____

Temperature upon receipt 4.4 °C

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
Acct. # 7039 Group # 1417115 Sample # 7188948-71
Instructions on reverse side correspond with circled numbers.

COC # 334838

1 Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube	PWSID #:
Project Manager: Joe Rossi	P.O. #: 6983
Sampler: KR/AL	Quote #:
Name of state where samples were collected: Pa	

4 Matrix: Sediment; Soil; Water (Potable, NPDES, Ground ☑, Surface); Other:

5 Analysis Requested — Preservation Codes: H; TCE, PCE, TCA, 1,2 DCE, VC 8260

For Lab Use Only
FSC:
SCR#: 144523

Preservation Codes
H=HCl T=Thiosulfate
$N=HNO_3$ B=NaOH
$S=H_2SO_4$ O=Other

6 Remarks

2 Sample Identification / 3 Collected

Sample Identification	Date	Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCE, PCE, TCA, 1,2 DCE, VC 8260
R3969	9-4-13	1020	✓			✓		3	X
PW1	9-4-13	1150	✓			✓		3	X
PW1 DUP	9-4-13	1150	✓			✓		3	X
MW17	9-4-13	1300	✓			✓		3	X
MW17MS	9-4-13	1300	✓			✓		3	X
MW17MSD	9-4-13	1300	✓			✓		3	X
PW3	9-4-13	1410	✓			✓		3	X
PW3D	9-4-13	1250	✓			✓		3	X
FB	9-4-13	1530	✓			✓		3	X
Trip Blank	—	—	—			✓		2	X

7 Turnaround Time (TAT) Requested (please circle)
Standard (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

E-mail address:

8 Data Package Options (circle if required) ELEDD

Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	8/30/13	0830	Mark Denlinger	8/30/13	0830
Mark Denlinger	8/30	1020			
K. R[illegible]	9/6/13	0900	Mark Denlinger	9/6/13	1130
Mark Denlinger	9/6/13	1640			
			[illegible]	9/6/13	1640

EDD Required? Yes No
If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 4.4 °C

Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories use only
Acct. # 7039 Group # 1417115 Sample # 7188948-71
Instructions on reverse side correspond with circled numbers.

COC # 334837

① Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube	PWSID #:
Project Manager: Joe Rossi	P.O. #: 6983
Sampler: KL/CS	Quote #:
Name of state where samples were collected: PA	

④ Matrix: Sediment ☐ / Soil ☐; Water: Ground ☑ Surface ☐ Potable ☐ NPDES ☐; Other: ____

⑤ Analysis Requested — Preservation Codes: H; TCE PCE DCE TCA VC 8260

For Lab Use Only
FSC: ____
SCR#: 144523

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

⑥ Remarks

② Sample Identification	Collected Date	Collected Time	③ Grab	Composite	Soil	Water	Other	Total # of Containers	TCE PCE DCE TCA VC 8260
MW15	9-5-13	1040	✓			✓		3	X
3M	9-5-13	1125	✓			✓		3	X
FB	9-5-13	1215	✓			✓		3	X
Trip Blank	—	—	-			✓		2	X

⑦ Turnaround Time (TAT) Requested (please circle)
Standard (circled) Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: ____

E-mail address: ____

⑧ Data Package Options (circle if required) EZ-EDD
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	8/30/13	0830	Mark Denlinger	8/30/13	0830
Mark Denlinger	8/30	1020			
K.B.M.A	9/6/13	900	Mark Denlinger	9/6/13	1130
Mark Denlinger	9/6/13	1640			
			[signature]	9/6/13	1640

⑨

EDD Required? Yes No
If yes, format: ____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 4.4° °C

Eurofins Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300
The white copy should accompany samples to Eurofins Lancaster Laboratories. The yellow copy should be retained by the client.

Issued by Dept. 40 Management
7044.02

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Environmental Sample Administration Receipt Documentation Log

14117115

Client/Project: Environmental Alliance

Date of Receipt: 9/6/13

Time of Receipt: 1640

Source Code: 01

Shipping Container Sealed: (YES) NO

Custody Seal Present * : YES (NO)

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DT121	4.4	TB	WI	Y	B	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 4

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: 2308 **Date/Time:** 9/6/13 1710

Issued by Dept. 6042 Management

2174.06

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

October 14, 2013

Project: 3483 / Superior Tube, PA

Submittal Date: 10/03/2013
Group Number: 1423763
PO Number: 7172
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
BBField1002131030 Grab Groundwater	7224103
MW221002131220 Grab Groundwater	7224104
MW11002131220 Grab Groundwater	7224105
2M1002131240 Grab Groundwater	7224106
4M1002131305 Grab Groundwater	7224107
MW151002131500 Grab Groundwater	7224108
FB1002131530 Water	7224109
Trip_Blank100213 Water	7224110

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO Environmental Alliance, Inc. Attn: Myrna Klair

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW11002131220 Grab Groundwater
3483 / Superior Tube, PA

LL Sample # WW 7224105
LL Group # 1423763
Account # 07039

Project Name: 3483 / Superior Tube, PA

Collected: 10/02/2013 12:20 by KR

Submitted: 10/03/2013 17:00
Reported: 10/14/2013 08:21

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

MW1--

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	cis-1,2-Dichloroethene	156-59-2	88	10	2
10335	trans-1,2-Dichloroethene	156-60-5	< 10	10	2
10335	Tetrachloroethene	127-18-4	< 10	10	2
10335	1,1,1-Trichloroethane	71-55-6	< 10	10	2
10335	Trichloroethene	79-01-6	1,700	100	20
10335	Vinyl Chloride	75-01-4	< 10	10	2

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/14

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	N132832AA	10/11/2013 05:35	Andrea E Lando	2
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	N132832AA	10/11/2013 05:59	Andrea E Lando	20
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N132832AA	10/11/2013 05:35	Andrea E Lando	2
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N132832AA	10/11/2013 05:59	Andrea E Lando	20

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1423763
Reported: 10/14/13 at 08:21 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N132832AA	Sample number(s): 7224103-7224107							
cis-1,2-Dichloroethene	< 5	5.	ug/l	107	106	80-120	1	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	110	108	80-120	1	30
Tetrachloroethene	< 5	5.	ug/l	102	104	80-120	2	30
1,1,1-Trichloroethane	< 5	5.	ug/l	110	110	66-126	0	30
Trichloroethene	< 5	5.	ug/l	109	109	80-120	0	30
Vinyl Chloride	< 5	5.	ug/l	102	99	63-120	3	30
Batch number: N132842AA	Sample number(s): 7224107-7224110							
cis-1,2-Dichloroethene	< 5	5.	ug/l	105	104	80-120	1	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	107	105	80-120	2	30
Tetrachloroethene	< 5	5.	ug/l	101	101	80-120	0	30
1,1,1-Trichloroethane	< 5	5.	ug/l	114	114	66-126	0	30
Trichloroethene	< 5	5.	ug/l	107	107	80-120	0	30
Vinyl Chloride	< 5	5.	ug/l	98	97	63-120	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N132832AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7224103	101	102	100	96
7224104	102	102	102	97
7224105	102	102	101	96
7224106	102	102	102	96
7224107	102	102	101	96
Blank	100	102	101	97
LCS	101	101	103	100
LCSD	100	102	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: N132842AA

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1423763
Reported: 10/14/13 at 08:21 AM

Surrogate Quality Control

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7224108	100	102	101	97
7224109	100	101	101	97
7224110	100	101	101	97
Blank	98	101	101	99
LCS	100	102	102	99
LCSD	100	101	101	99
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

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Acct. # 7039 For Eurofins Lancaster Laboratories use only Group # 192376 Sample # 7224103-10
Instructions on reverse side correspond with circled numbers.

COC # 324344

1 Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube #3483	PWSID #:
Project Manager: Joe Rossi	P.O. #: 7172
Sampler: KA / SM	Quote #:

Name of state where samples were collected: PA

4 Matrix

Sediment ☐ Soil ☐ | Ground ☒ Potable ☐ Water | Surface ☐ NPDES ☐ | Other: ☐

5 Analysis Requested

Preservation Codes

For Lab Use Only

FSC:
SCR#: 141317

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	3 Composite	Total # of Containers	TCE PCE cis+trans 1-2 DCE, TCA, VC 8260
BB Field	10/2/13	1030	✓		3	X
MW 22	10/2/13	1220	✓		3	X
MW 1	10/2/13	1230	✓		3	X
2M	10/2/13	1240	✓		3	X
4M	10/2/13	1305	✓		3	X
MW 15	10/2/13	1500	✓		3	X
EB	10/2/13	1530	✓		3	X
Trip Blank	—	—	—		2	X

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: _____

E-mail address: _____

8 Data Package Options (circle if required)

EQ-EDD

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	6-9-13	1000	Mark Denlinger	6-9-13	1000
Mark Denlinger	6/19/13	1150			
	10/3/13	0900	Mark Denlinger	10/3/13	1015
Mark Denlinger	10/3/13	1700			
				10/3/13	1700

9

EDD Required? Yes No
If yes, format: _____

Site-Specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 3.0 °C

Eurofins Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300
The white copy should accompany samples to Eurofins Lancaster Laboratories. The yellow copy should be retained by the client.
Issued by Dept. 40 Management
7044.02

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Environmental Sample Administration Receipt Documentation Log

1423763

Client/Project: Environmental Alliance

Date of Receipt: 10/3/13

Time of Receipt: 1700

Source Code: 01

Shipping Container Sealed: YES (NO)

Custody Seal Present * : YES (NO)

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DT121	3.0	TB	WI	Y	B	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: 2308 **Date/Time:** 10/3/13 1746

Issued by Dept. 6042 Management

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

December 03, 2013

Project: 3483 / Superior Tube, PA

Submittal Date: 11/19/2013
Group Number: 1435152
PO Number: 7447
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
BBField1115131115 Grab Groundwater	7283885
MW-11115131245 Grab Groundwater	7283886
MW151115131500 Grab Groundwater	7283887
FB1115131505 Grab Water	7283888
Trip_Blank111513 Water	7283889

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO Environmental Alliance, Inc. Attn: Myrna Klair

Respectfully Submitted,

Megan A. Moeller
Senior Specialist

(717) 556-7261

Sample Description: MW-11115131245 Grab Groundwater
3483 / Superior Tube, PA

LL Sample # WW 7283886
LL Group # 1435152
Account # 07039

Project Name: 3483 / Superior Tube, PA

Collected: 11/15/2013 12:45 by KR

Submitted: 11/19/2013 18:05
Reported: 12/03/2013 14:01

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

--MW1

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	cis-1,2-Dichloroethene	156-59-2	100	5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	1
10335	Tetrachloroethene	127-18-4	7	5	1
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	1
10335	Trichloroethene	79-01-6	2,000	50	10
10335	Vinyl Chloride	75-01-4	< 5	5	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/14

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	N133311AA	11/27/2013 17:32	Linda C Pape	1
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	N133311AA	11/27/2013 17:56	Linda C Pape	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	N133311AA	11/27/2013 17:32	Linda C Pape	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	N133311AA	11/27/2013 17:56	Linda C Pape	10

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1435152
Reported: 12/03/13 at 02:01 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: N133311AA	Sample number(s): 7283885-7283886,7283888-7283889							
cis-1,2-Dichloroethene	< 5	5.	ug/l	100	102	80-120	2	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	104	107	80-120	3	30
Tetrachloroethene	< 5	5.	ug/l	99	101	80-120	2	30
1,1,1-Trichloroethane	< 5	5.	ug/l	94	96	66-126	2	30
Trichloroethene	< 5	5.	ug/l	105	108	80-120	3	30
Vinyl Chloride	< 5	5.	ug/l	82	83	63-120	2	30
Batch number: N133313AA	Sample number(s): 7283887							
cis-1,2-Dichloroethene	< 5	5.	ug/l	103	103	80-120	0	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	107	107	80-120	0	30
Tetrachloroethene	< 5	5.	ug/l	102	100	80-120	2	30
1,1,1-Trichloroethane	< 5	5.	ug/l	100	99	66-126	1	30
Trichloroethene	< 5	5.	ug/l	109	108	80-120	0	30
Vinyl Chloride	< 5	5.	ug/l	78	79	63-120	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: N133311AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7283885	107	105	100	91
7283886	108	105	102	90
7283888	107	104	100	90
7283889	107	104	100	90
Blank	105	104	101	91
LCS	102	105	103	98
LCSD	103	103	104	99
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: N133313AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1435152
Reported: 12/03/13 at 02:01 PM

Surrogate Quality Control

7283887	104	104	101	92
Blank	107	105	100	91
LCS	104	103	104	100
LCSD	103	103	102	99
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

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Acct. # 7039 | For Eurofins Lancaster Laboratories Environmental use only: Group # 435152 Sample # 778885-89
Instructions on reverse side correspond with circled numbers.

COC # 339182

1 Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube #3483	PWSID #:
Project Manager: Joe Rossi	P.O. #: 7447
Sampler: KR	Quote #:

Name of state where samples were collected: Pa

4 Matrix

Soil ☐ Sediment ☐ Water ☒ Ground ☐ Potable ☐ NPDES ☐ Surface ☐ Other: ____

5 Analysis Requested

Preservation Codes

For Lab Use Only

FSC: ____
SCR#: 146906

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

6 Remarks

2 Sample Identification	Collected Date	Collected Time	3 Grab	Composite	Total # of Containers	TCE, PCE, cis-1,2-DCE, TCA, vinyl chloride
BB Field	11/15/13	1115	✓		3	✓
MW-1	↓	1245	✓		3	✓
MW 15	↓	1500	✓		3	✓
FB	11/15/13	1505	✓		3	✓
Trip Blank	—				2	✓

7 Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: _____

E-mail address: _____

8 Data Package Options (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	11/17/13	0845	[signature]	11/18	0845
[signature]	11/1	1025	[signature]	11/19/13	0800
[signature]	11/A/13	815	[signature]	11-19-13	11:00
[signature]	11/19/13	1905			
			[signature]	11/A/13	1605

9

EDD Required? Yes (No)
If yes, format: EZ-EDD

Site-Specific QC (MS/MSD/Dup)? Yes (No)
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS _____ FedEx _____ Other _____

Temperature upon receipt 0.3 °C

eurofins | Lancaster Laboratories

Environmental Sample Administration Receipt Documentation Log

1435152

Client/Project: Environmental Alliance

Date of Receipt: 11/19/13

Time of Receipt: 1805

Source Code: 01

Shipping Container Sealed: (YES) NO

Custody Seal Present * : (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DT121	0.3	TB	WI	Y	B	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: 2308 **Date/Time:** 11/19/13 1910

Issued by Dept. 6042 Management

2174.06

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

December 27, 2013

Project: 3483 / Superior Tube, PA

Submittal Date: 12/13/2013
Group Number: 1440892
PO Number: 7575
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
BBF1209131420 Grab Groundwater	7313242
MW211209131400 Grab Groundwater	7313243
FB1209131430 Grab Water	7313244
PW51211130945 Grab Groundwater	7313245
Specks1211131025 Grab Groundwater	7313246
PW3D1211131020 Grab Groundwater	7313247
PW31211131150 Grab Groundwater	7313248
MW151211131020 Grab Groundwater	7313249
3M1211131330 Grab Groundwater	7313250
FB1211131350 Grab Water	7313251
MW11212131130 Grab Groundwater	7313252
MW1MS1212131140 Grab Groundwater	7313253
MW1MSD1212131145 Grab Groundwater	7313254
MW1DUP1212131135 Grab Groundwater	7313255
MW171212131135 Grab Groundwater	7313256
8M1212131330 Grab Groundwater	7313257
PW11212131340 Grab Groundwater	7313258
FB1212131400 Grab Water	7313259
Trip_Blank120613 Water	7313260

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO Environmental Alliance, Inc. Attn: Myrna Klair

Sample Description: MW11212131130 Grab Groundwater
3483 / Superior Tube, PA

LL Sample # WW 7313252
LL Group # 1440892
Account # 07039

Project Name: 3483 / Superior Tube, PA

Collected: 12/12/2013 11:30 by KR

Submitted: 12/13/2013 17:15
Reported: 12/27/2013 12:37

Environmental Alliance, Inc.
5341 Limestone Rd
Wilmington DE 19808

STP01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**	**ug/l**	
10335	cis-1,2-Dichloroethene	156-59-2	97	5	1
10335	trans-1,2-Dichloroethene	156-60-5	< 5	5	1
10335	Tetrachloroethene	127-18-4	7	5	1
10335	1,1,1-Trichloroethane	71-55-6	< 5	5	1
10335	Trichloroethene	79-01-6	1,600	50	10
10335	Vinyl Chloride	75-01-4	< 5	5	1

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/14

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	T133512AA	12/18/2013 05:01	Sarah A Guill	1
10335	TCE,PCE,DCE,TCA, VC 8260	SW-846 8260B	1	T133512AA	12/18/2013 06:12	Sarah A Guill	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	T133512AA	12/18/2013 05:01	Sarah A Guill	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	T133512AA	12/18/2013 06:12	Sarah A Guill	10

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1440892
Reported: 12/27/13 at 12:37 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: T133511AA	Sample number(s): 7313242-7313245							
cis-1,2-Dichloroethene	< 5	5.	ug/l	92	92	80-120	1	30
trans-1,2-Dichloroethene	< 5	5.	ug/l	102	98	80-120	3	30
Tetrachloroethene	< 5	5.	ug/l	99	97	80-120	2	30
1,1,1-Trichloroethane	< 5	5.	ug/l	96	91	66-126	5	30
Trichloroethene	< 5	5.	ug/l	98	95	80-120	3	30
Vinyl Chloride	< 5	5.	ug/l	83	78	63-120	6	30
Batch number: T133512AA	Sample number(s): 7313246-7313260							
cis-1,2-Dichloroethene	< 5	5.	ug/l	93		80-120		
trans-1,2-Dichloroethene	< 5	5.	ug/l	100		80-120		
Tetrachloroethene	< 5	5.	ug/l	99		80-120		
1,1,1-Trichloroethane	< 5	5.	ug/l	97		66-126		
Trichloroethene	< 5	5.	ug/l	98		80-120		
Vinyl Chloride	< 5	5.	ug/l	79		63-120		
Batch number: T133541AA	Sample number(s): 7313248							
Trichloroethene	< 5	5.	ug/l	97		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: T133512AA	Sample number(s): 7313246-7313260 UNSPK: 7313252								
cis-1,2-Dichloroethene	90 (2)	109 (2)	80-141	3	30				
trans-1,2-Dichloroethene	109	110	81-142	1	30				
Tetrachloroethene	107	109	80-128	2	30				
1,1,1-Trichloroethane	109	109	69-140	0	30				
Trichloroethene	-202 (2)	-285 (2)	88-133	1	30				
Vinyl Chloride	91	90	66-133	1	30				
Batch number: T133541AA	Sample number(s): 7313248 UNSPK: P316217								
Trichloroethene	129	108	88-133	18	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Environmental Alliance, Inc. Group Number: 1440892
Reported: 12/27/13 at 12:37 PM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 VOCs
Batch number: T133511AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7313242	105	103	98	102
7313243	106	102	98	102
7313244	104	103	97	99
7313245	103	100	96	100
Blank	102	100	96	98
LCS	102	101	96	99
LCSD	101	99	97	98
Limits:	80-116	77-113	80-113	78-113

Analysis Name: 8260 VOCs
Batch number: T133512AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7313246	104	100	97	100
7313247	104	104	97	99
7313248	103	98	97	102
7313249	102	102	97	102
7313250	104	102	97	101
7313251	105	101	98	101
7313252	106	101	98	101
7313253	105	101	98	104
7313254	104	101	97	103
7313255	105	103	97	100
7313256	104	102	97	101
7313257	105	101	99	101
7313258	103	101	98	102
7313259	104	103	98	101
7313260	103	102	98	98
Blank	102	102	95	99
LCS	108	102	98	102
MS	105	101	98	104
MSD	104	101	97	103
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Environmental Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only
Acct. # 7039 Group # 1440892 Sample # 7313242-60
Instructions on reverse side correspond with circled numbers.

COC # 340855

For Lab Use Only
FSC:
SCR#: 148175

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

1 Client Information

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior Tube #3483	PWSID #:
Project Manager: Joe Rossi	P.O. #: 7576
Sampler: Ke/Hy	Quote #:
Name of state where samples were collected: PA	

4 Matrix
Sediment ☐ | Ground ☒ | Surface ☐ | Potable ☐ | NPDES ☐ | Soil ☐ | Water | Other:

5 Analysis Requested
Preservation Codes: H
TCE PCE DCE TCA VC 8260

2 Sample Identification

Sample Identification	Collected Date	Collected Time	Grab	Composite	Soil	Water	Other	Total # of Containers	TCE PCE DCE TCA VC 8260
BBF	12-9-13	1420	✓			✓		3	X
MW21	12-9-13	1400	✓			✓		3	X
FB	12-9-13	1430	✓			✓		3	X
PW5	12-11-13	0945	✓			✓		3	X
Specks	12-11-13	1025	✓			✓		3	X
PW3D	12-11-13	1020	✓			✓		3	X
PW3	12-11-13	1150	✓			✓		3	X
MW15	12-11-13	1020	✓			✓		3	X
3M	12-11-13	1330	✓			✓		3	X
FB	12-11-13	1350	✓			✓		3	X

6 Remarks

7 Turnaround Time (TAT) Requested (please circle)
(Standard) Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____________

E-mail address: ____________

8 Data Package Options (circle if required)
Type I (Validation/non-CLP) Type VI (Raw Data Only)
Type III (Reduced non-CLP) TX TRRP-13
Type IV (CLP SOW) MA MCP CT RCP

9

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage	12/2/13	0915	Mark Denlinger	12/2/13	0915
Mark D	12/2/13	1200			
[signature]	12/13/13	0900	Mark Denlinger	12/13/13	1140
Mark Denlinger	12/13/13	1715			
			[signature]	12/13/13	1715

EDD Required? Yes No
If yes, format: EZ-EDD

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 0.6 °C

Environmental Analysis Request/Chain of Custody

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Acct. # 7039 For Eurofins Lancaster Laboratories Environmental use only Group # 1440892 Sample # 7313242-60

Instructions on reverse side correspond with circled numbers.

COC # 341332

① **Client Information**

Client: Environmental Alliance	Acct. #:
Project Name/#: Superior TUBE # 3483	PWSID #:
Project Manager: Joe Rossi	P.O. #: 7575
Sampler: KR/HY	Quote #:
Name of state where samples were collected: PA	

④ **Matrix**: Sediment ☐ Ground ☒ Surface ☐ Soil ☐ Water: Potable ☐ NPDES ☐ Other: ___

⑤ **Analysis Requested** — Preservation Codes: H — TCE, PCE, DCE, TCA, VC 8260

For Lab Use Only
FSC:
SCR#: 149436

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

⑥ **Remarks**

② Sample Identification	Collected Date	Collected Time	③ Grab	Composite	Soil	Water	Other	Total # of Containers	TCE, PCE, DCE, TCA, VC 8260 (H)
MW1	12-12-13	1130	✓			✓		3	X
MW1 DUP	↓	1135	✓			✓		3	X
MW1 MS		1140	✓			✓		3	X
MW1 MSD		1145	✓			✓		3	X
MW17		1135	✓			✓		3	X
BM		1330	✓			✓		3	X
PW1		1340	✓			✓		3	X
FB	↓	1400	✓			✓		3	X
Trip Blanks	12/6/13		✓			✓			X

⑦ **Turnaround Time (TAT) Requested** (please circle)
(Standard) Rush
(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed: ____________

E-mail address: ____________

Relinquished by	Date	Time	Received by	Date	Time
Bottle Storage					
~~Kevin Rossler~~					
[signature]	12/13/13	0900	Mark Denlinger	12-13-13	1140
Mark Denlinger 12/13/13 1715					
			[signature]	12/13/13	1715

⑨

⑧ **Data Package Options** (circle if required)

Type I (Validation/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

Type IV (CLP SOW) MA MCP CT RCP

EDD Required? Yes No
If yes, format: EZ-EDD

Site-Specific QC (MS/MSD/Dup)? (Yes) No
(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier:
UPS ____ FedEx ____ Other ____

Temperature upon receipt 0.6 °C

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Environmental Sample Administration Receipt Documentation Log 1440892

Client/Project: Environmental Alliance

Date of Receipt: 12/13/13

Time of Receipt: 1715

Source Code: 01

Shipping Container Sealed: (YES) NO

Custody Seal Present * : (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	DT121	0.6	TB	WI	Y	B	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0(8)

Paperwork Discrepancy/Unpacking Problems:

MW-15 time=1225

Unpacker Signature/Emp#: 2308 **Date/Time:** 12/13/13 1742

Issued by Dept. 6042 Management

2174.06

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ATTACHMENT II

SOIL GAS MONITORING WELL SAMPLING PROCEDURES

Soil Gas Monitoring Well Sampling Procedures

A soil gas sampling event is proposed at the following address:

Lot 8
Superior Tube Company, Inc.
3900 Germantown Pike
Collegeville, PA 19426

Following is a summary of the procedures recommended for the sampling event.

Pre-Sampling Inspection

- Soil Gas samples should not be collected less than 24 hours after a heavy rain.
- Personnel collecting the samples will avoid using permanent markers, or wearing perfume or cologne.
- Soil gas monitoring wells (SGMWs) will be gauged with a decontaminated water level indicator to detect for the presence of water in the well and confirm the total depth and well volume.
- Samples will NOT be collected if water is present in the SGMW.
- Note pertinent weather conditions on the field sampling form.

Soil Gas Monitoring Well Sampling Procedure

1) Prior to the sampling event, certified 6-Liter Summa Canisters are ordered from the laboratory with the appropriate valves and regulators. In this case, a 2-hour flow controller is proposed for the sampling. Confirm the vacuum pressure on the canister with the lab vacuum pressure, if it is different by more than 10% then don't sample with the container.
2) A leak detection test is conducted to verify the integrity of the seal around the SGMW and sample fittings. The test is performed using a tracer gas, helium. The wells are connected to ¼" OD Teflon® (or Teflon® lined polyethylene) tubing. A small bucket or cap is placed over the point and the atmosphere in the immediate vicinity of the point is enriched with the tracer gas. A 1-Liter Tedlar airbag is filled gently by pulling a vacuum on the SGMW and filling the tedlar bag with the extracted gas. The airbag is screened with a portable gas leak detector to monitor for the presence of helium (tracer gas). If necessary, the seal surrounding the SGMW and/or sample fitting is modified and the test repeated.
3) Following confirmation of the integrity of the seal, the SGMWs are connected to ¼" OD Teflon®. The tubing is connected to a three-way valve leading to the summa canister and a small portable vacuum pump (peristaltic or hand pump).

4) The valve leading to the small vacuum pump (peristaltic or hand pump) is opened and the probe and tubing are carefully purged by slowly filling a dedicated 1-Liter Tedlar airbag for field screening. The airbag is screened using a PID for VOCs and a gas meter for O_2 and CO_2. The purge volume should equal 3 calculated well volumes.

5) After the purge is complete, the valve is turned to allow flow into the summa canister, and the pump is disconnected from the line.

6) Samples are collected by closing the in-line valve on the pump end of the "T' fitting and opening the valve/regulator to the summa canister. At one SGMW location a duplicate, or replicate, soil gas sample is collected by disconnecting the pump and connecting an additional Summa canister via the "T" fitting.

7) An ambient air summa canister sample should be collected at the same time as the soil gas samples.

8) To minimize sampling errors, certain actions are avoided during the sampling procedure, such as: fueling vehicles, using permanent marking pens, or wearing perfume that could cause sample interference.

9) The Summa canisters are filled at each sample location and submitted to the laboratory for analysis of VOCs via EPA Method TO-15. Additionally, a trip blank consisting of a sealed Summa canister filled with humidified nitrogen accompanies the sample containers from the lab at all times (delivery, sampling, submittal and analysis).